

RE-ACTIVATE

Ongoing Study: Tentative Assessment of
the Solar Pumping Market in Egypt

Distributed Generation Conference
Cairo, 23rd May 2017



RCREEE 

Regional Center for Renewable Energy and Energy Efficiency
المركز الإقليمي للطاقة المتجددة وكفاءة الطاقة


**german
cooperation**
DEUTSCHE ZUSAMMENARBEIT

Implemented by :

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■ Overview

- About RE-ACTIVATE
- Status quo of agriculture and irrigation sector
- Breakdown of agricultural landholdings
- Applied irrigation systems for landholdings
- Potential market for solar water pumping
- Local value chain for solar water pumping
- Preliminary socio-economic impacts
- Main market opportunities
- Main challenges and barriers
- Important issues and relevant questions

■ RE-ACTIVATE Regional Project

"Promoting Employment through Renewable Energy and Energy Efficiency in the MENA Region"

The main **goal** of RE-ACTIVATE is:

*"The **conditions** for developing markets for **labor-intensive** RE/EE technologies in the MENA are **improved**".*

RCREEE entered in partnership with RE-ACTIVATE with the **main objective** of :

*"Supporting regional **cross-border** cooperation and **knowhow transfer** on **employment promotion** through RE/EE in the MENA"*

■ Status Quo of Agriculture and Irrigation

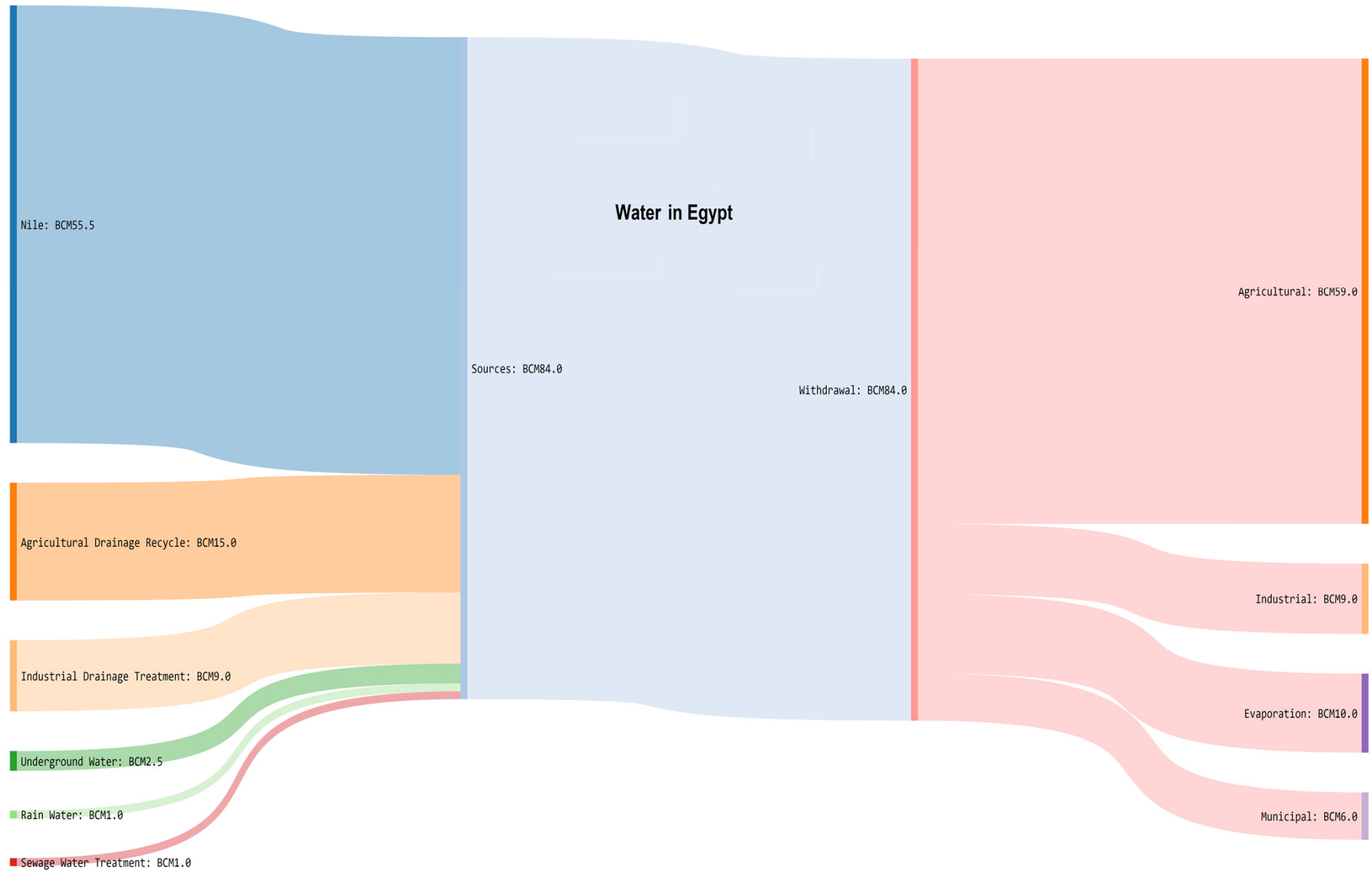
Total agricultural and cultivated area: **12.42 m** feddans

- In old lands: 9.73 m feddans (78.32%)
- In new lands: 2.69 m feddans (21.68%)
- Around **15.6%** of GDP in 2014-2015 (CBE)
- Up to **30%** of work force in 2016 (Worldbank)

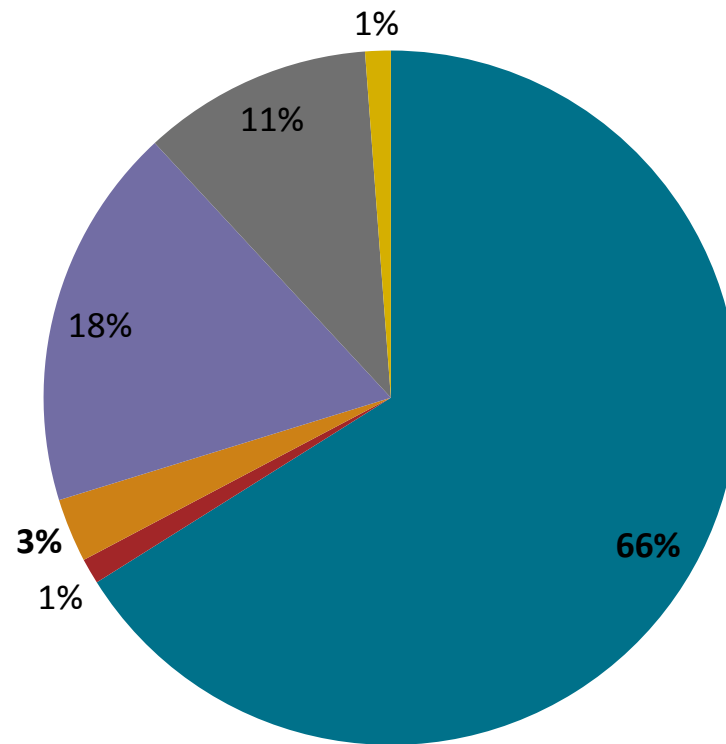
Irrigation is a closed system:

- Nile river : **55.5 m³** per year
- Dependency ratio **96.9%** (highest)

Water Sources and Withdrawal in Egypt



■ Water: Resources and Supply



■ Nile River basin

■ Rain water

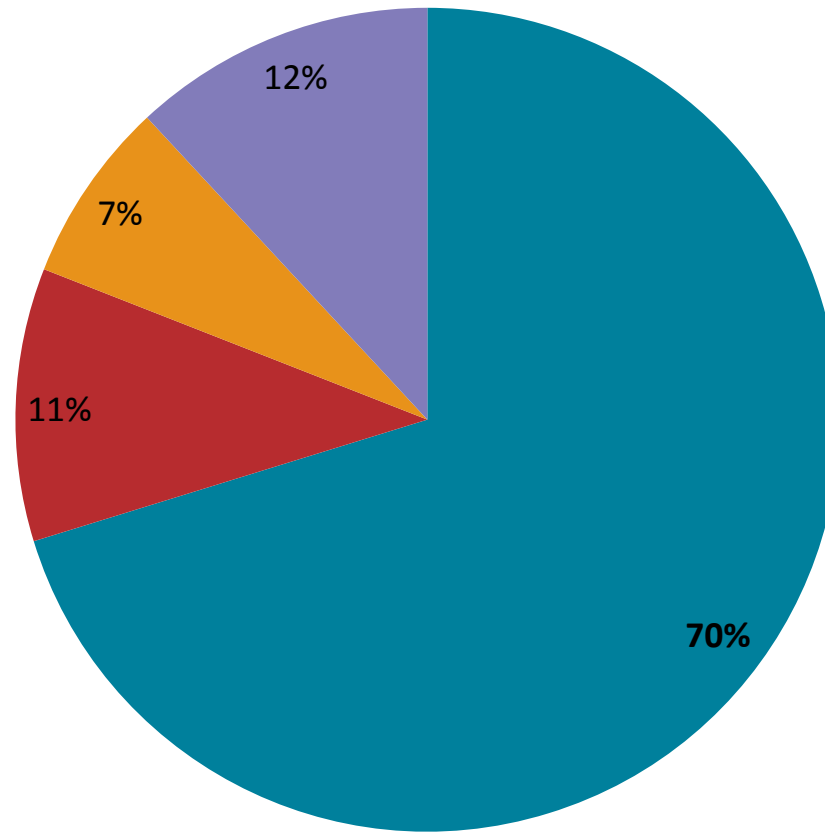
■ Underground water

■ Agriculture drainage recycling

■ Industrial water treatment

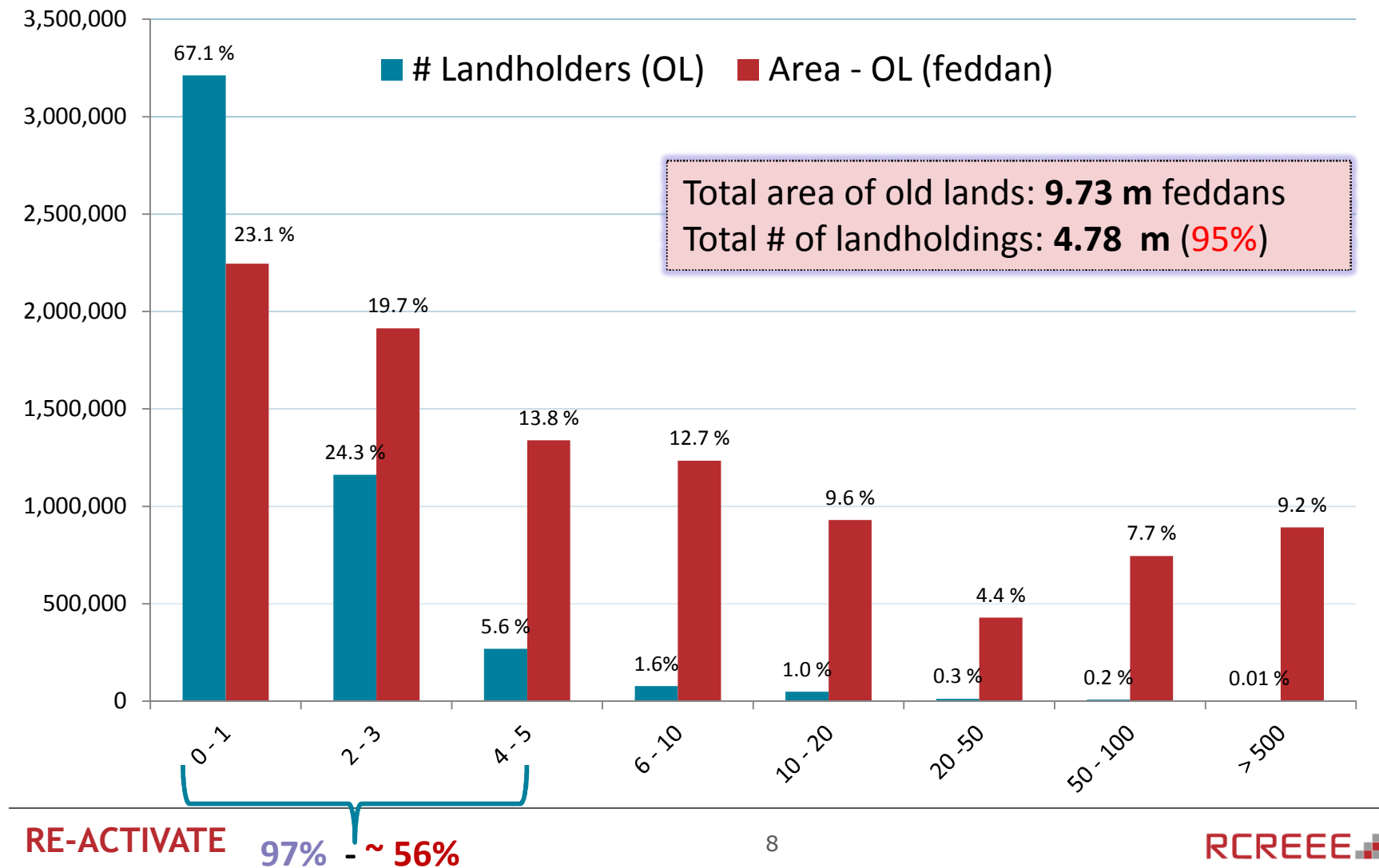
■ Sewage water treatment

■ Water: Withdrawal and Demand

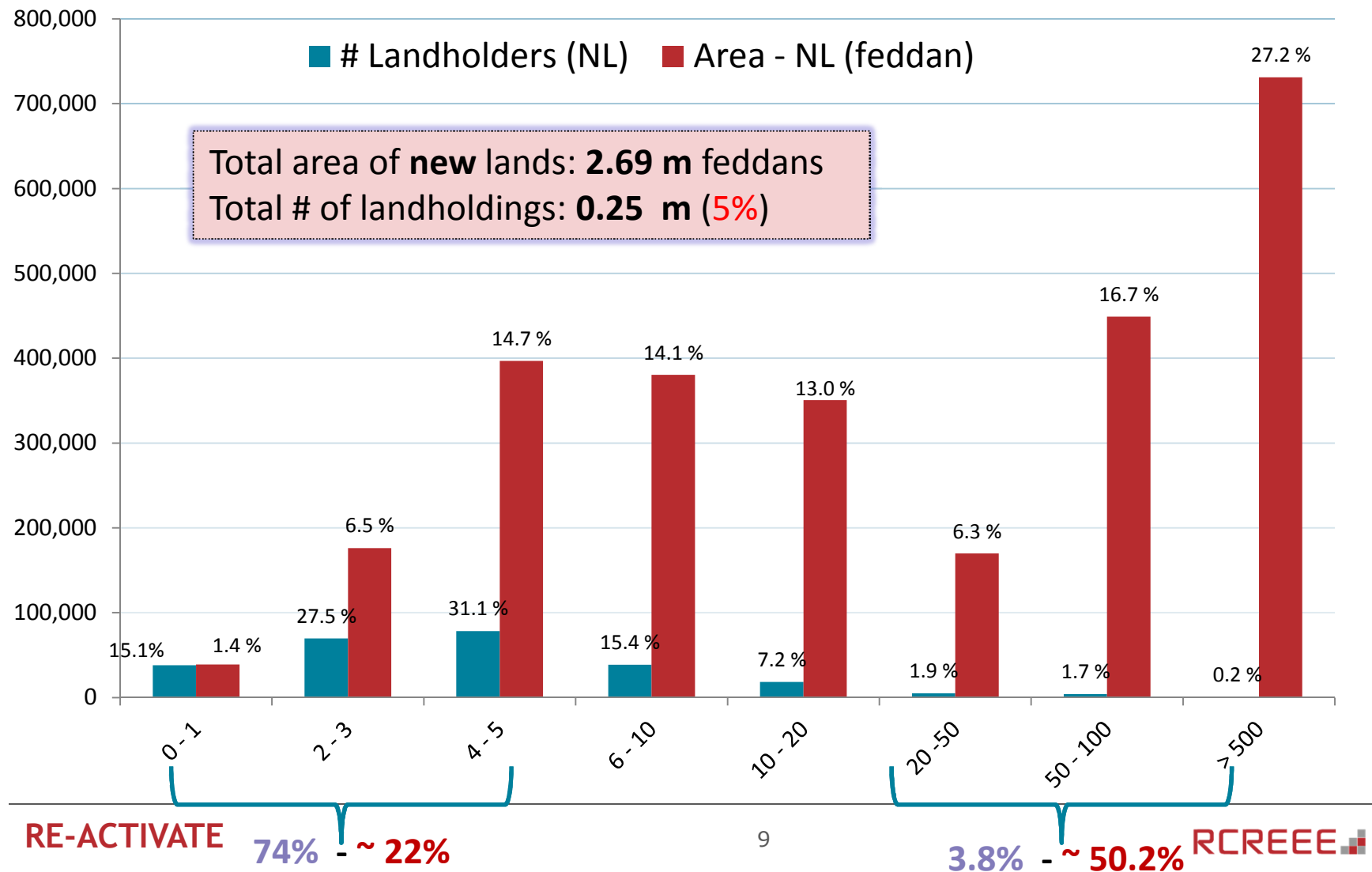


■ Agriculture sector ■ Industrial sector ■ Municipal sector ■ Evaporation losses

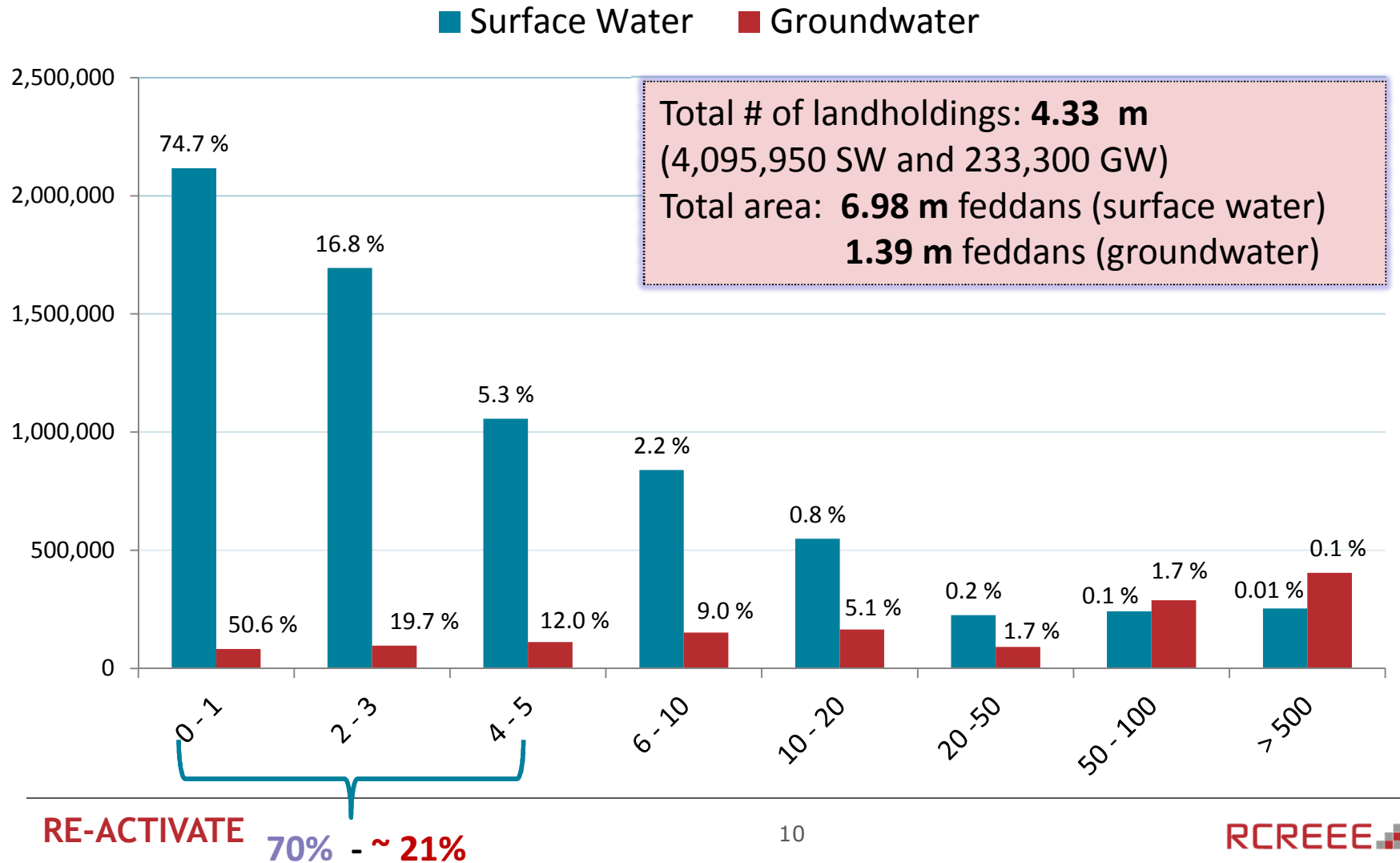
Breakdown of Agricultural Landholdings



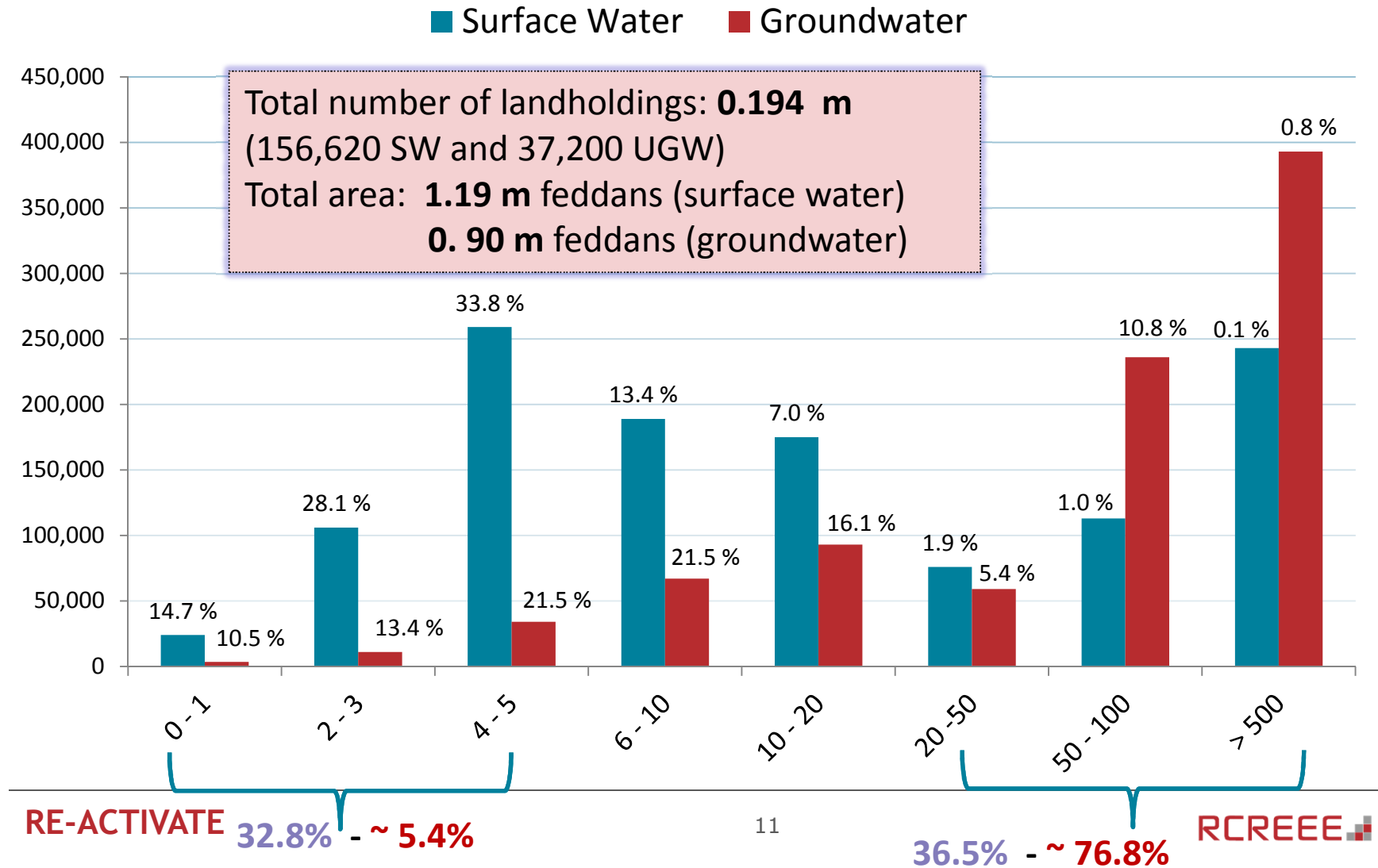
Breakdown of Agricultural Landholdings



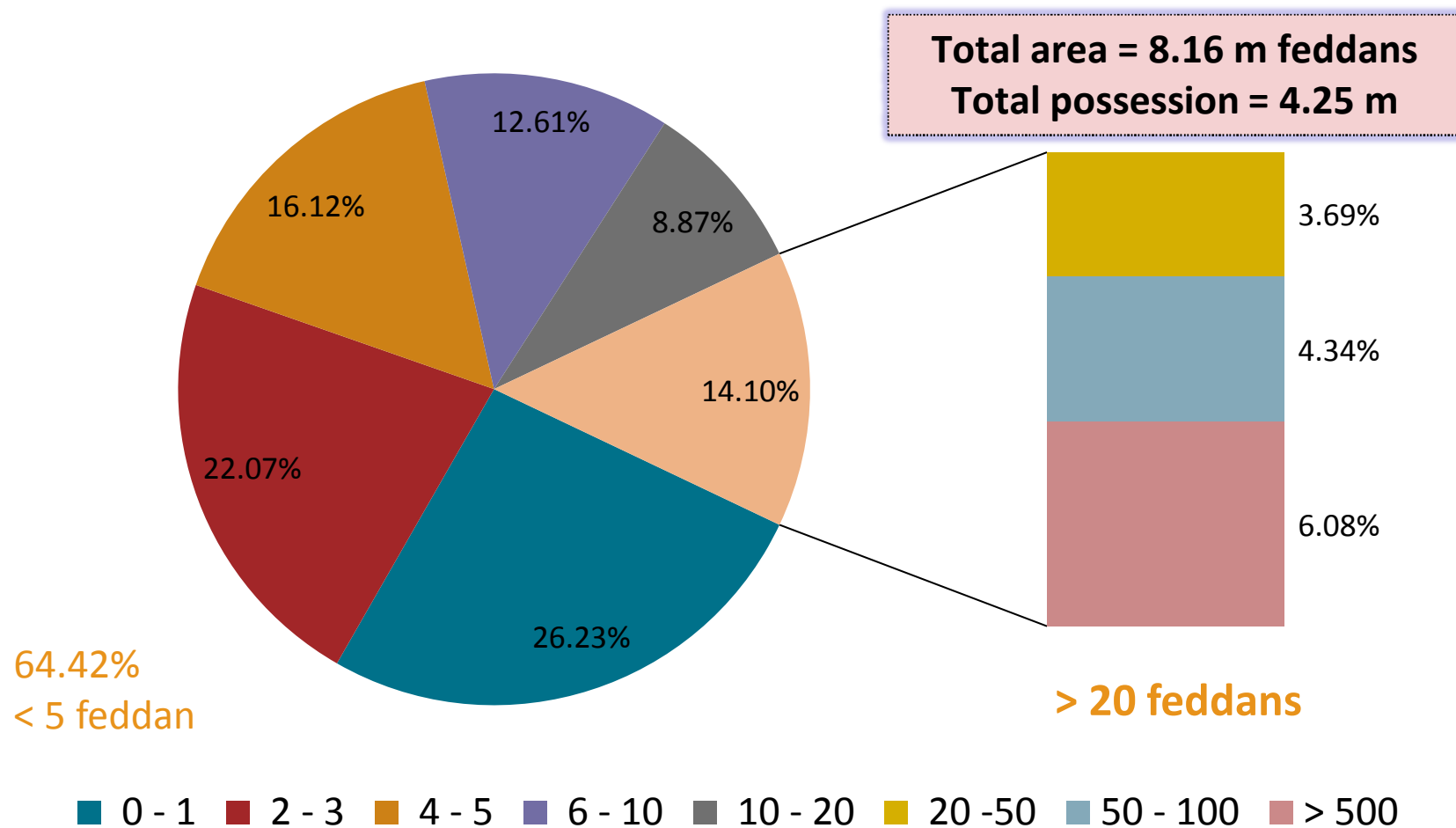
■ Applied Irrigation Systems in Old Lands



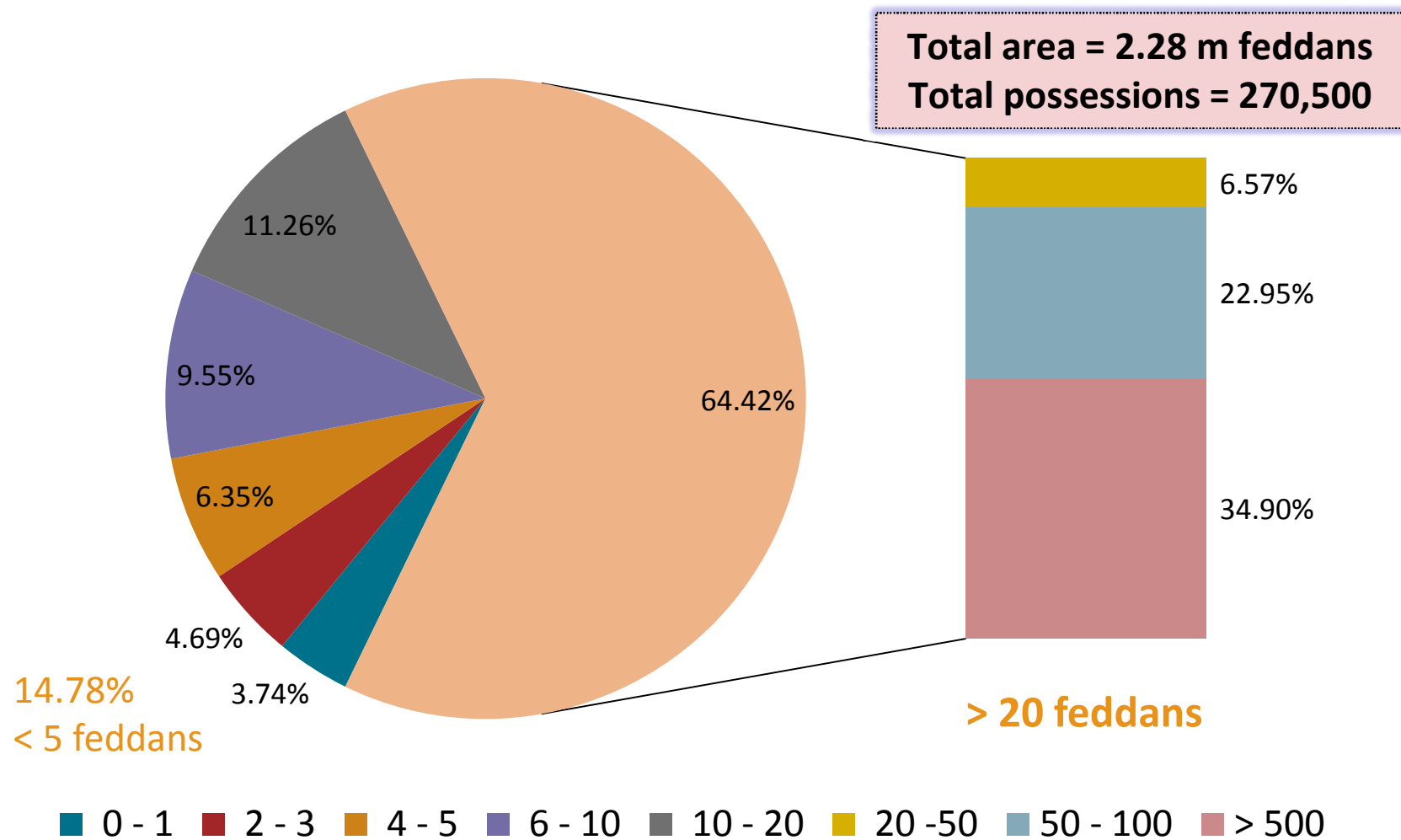
■ Applied Irrigation Systems in New Lands



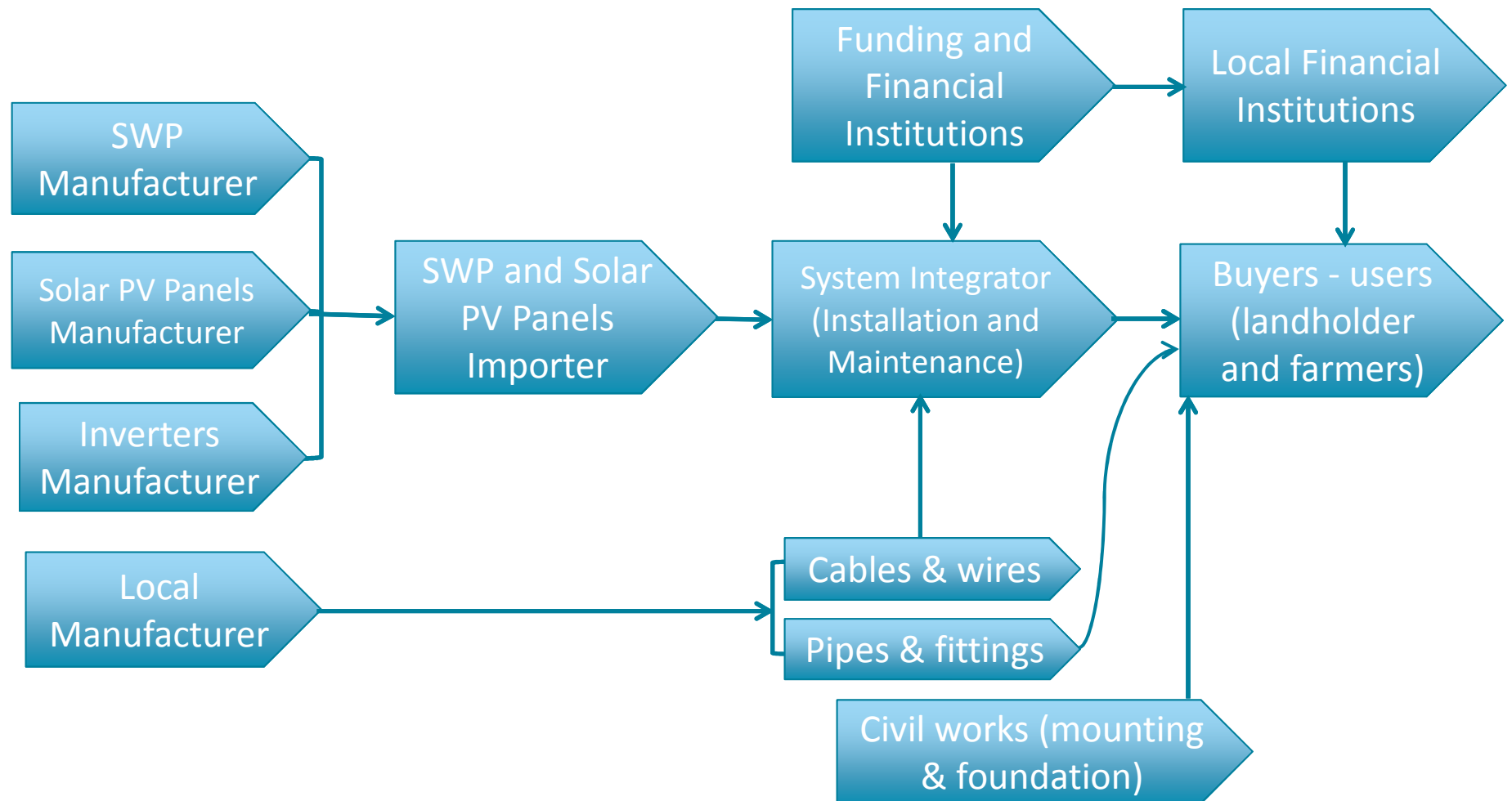
■ Breakdown of Cultivated Area: Surface Water Irrigation (old and new lands)



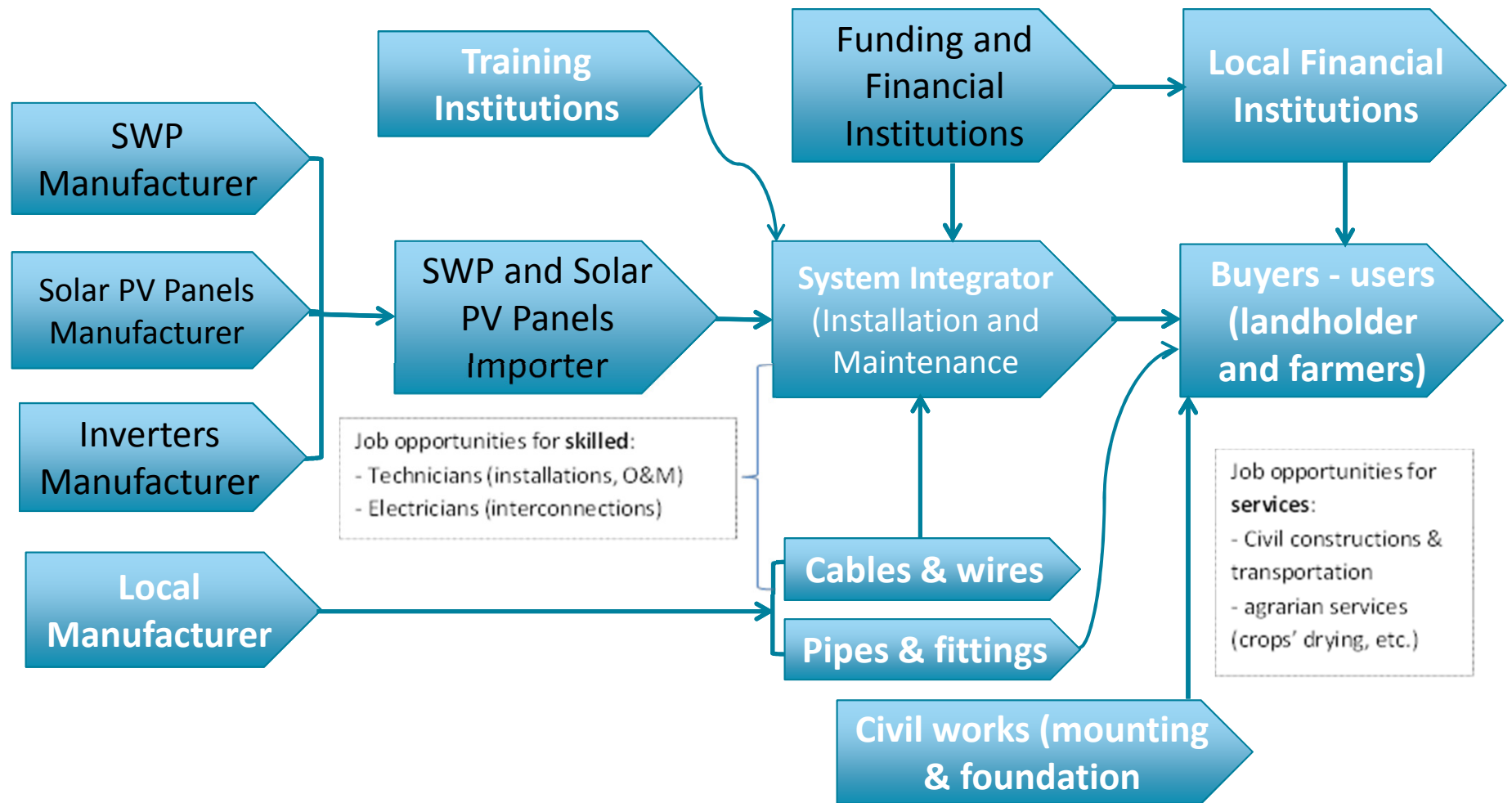
■ Breakdown of Cultivated Area: Underground Water Irrigation (old and new lands)



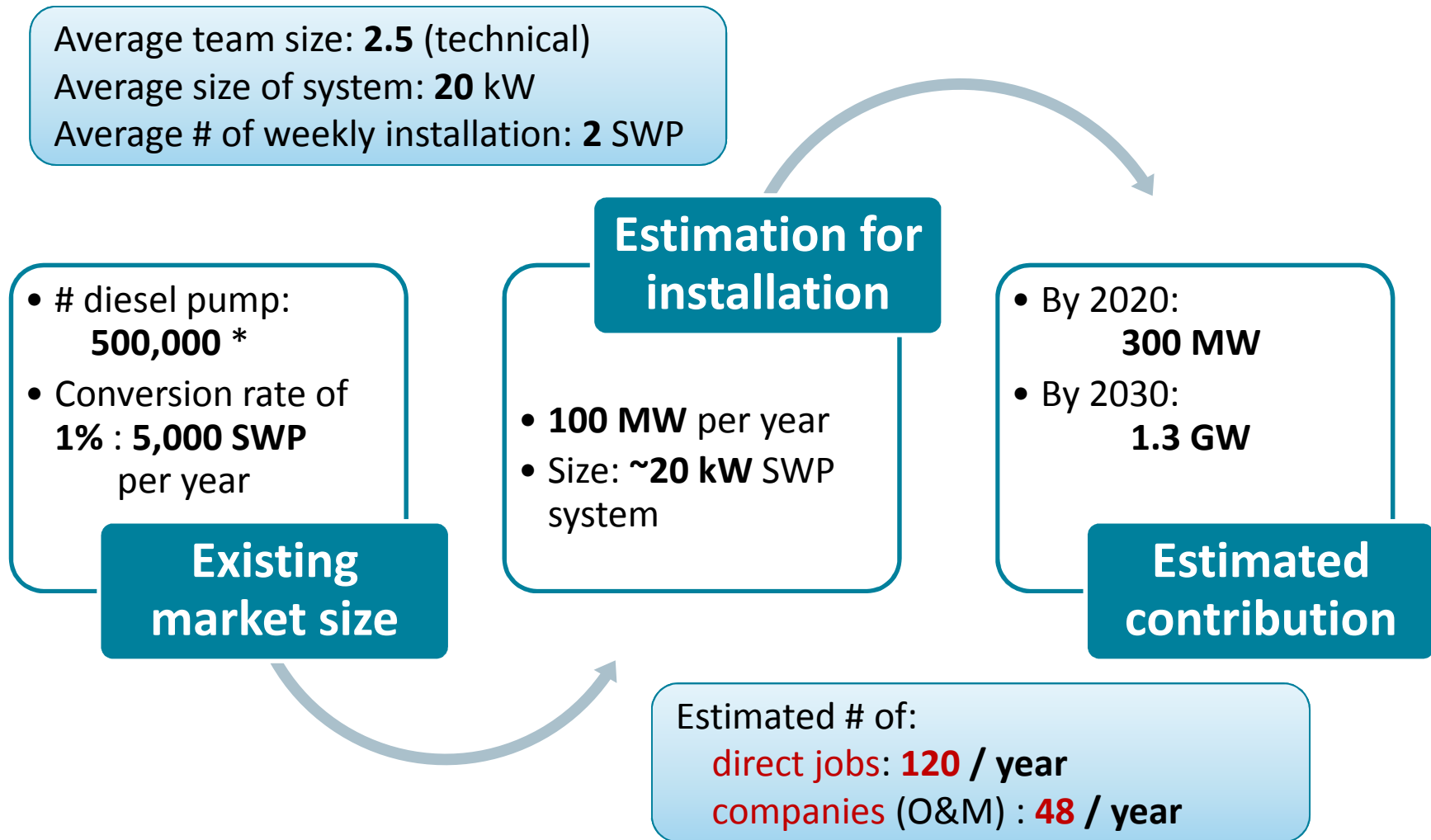
Local Value Chain for Solar Water Pumping Systems



Local Value Chain for Solar Water Pumping Systems (**Potential Job Opportunities**)



■ Preliminary Socio-Economic Impacts: Very Conservative Scenario



■ Potential Market for Solar Pumping

Targeted landholders (holdings **> 5 feddans**)*:

- Surface irrigation: area 2.9 m (4% landholders)
- Underground irrigation: area 1.95 m (23% landholders)
- Fragmentation is a real challenge, especially for the majority of landholders relying on surface water irrigation (total: 4.08 m possessions, 5.26 m feddans)
- Fruits and vegetables are considered of competitive advantage in agriculture and suitable also for SWP solutions (higher value crops)

■ Main Market Opportunities

- Government initiatives since 2014 have the potential to increase the agriculture land by 1/6 by end of 2018
- The new national project to reclaim 3 million feddans, mainly using solar pumping solutions was launched:
 - Agriculture area: 872,000 feddans,
 - Underground water: **4,622** wells
(estimated wells' depth ~ 250 – 1,200 m)
- Announced strategies and targets by 2022, 2035 and 2050

■ Main Market Challenges and Barriers

Economic

- Uplifting subsidies (fertilizers, diesel)
- High inflation rate (13.8%, October 2016)
- Devaluation of EGP
- High cost of using UGW (in remote areas, different quality and depth of UGW)

Financial

- Limited financial facilities (especially for farmers)
- Inconvenient terms of loans limit access to loans (official holdings)
- Inadequate subsidized loans for small farmers (Farmer's Credit Bank)

■ Main Market Challenges and Barriers

Technical

- Lack of skilled technical capacities
- Limited technical support in remote areas
- Climate challenges (R&D)

Social

- Lack of awareness
- Poverty and Population growth
- High loss rate of agriculture production (lack of services)

Others

- Land is highly fragmented
- Infrastructure is under-developed*
- Missing data or outdated numbers and figures!

■ Important and Relevant Questions

Financial mechanisms:

- To which extent is “leasing” an option?
- Is it possible to consider Farmers Associations or Cooperatives & ESCos as “beneficiary” for subsidized loans?

Legal and legislative framework:

- Responsibilities of and coordination between MoALR, MoWRI need to be clear and communicated to public.
- Access to updated figures and numbers for a robust model



Thank You

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